

## CLAIMS

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(b)

1. A hearing aid comprising:
  - a first section, the first section containing a microphone and electronics;
  - a second section attached to the first section, the second section containing a battery and a flex circuit mounted around the battery; and
  - a third section attached to the second section, the third section having a compliant tip and a receiver contained within a receptacle in the tip, the flex circuit electrically connecting the microphone, electronics, receiver and battery.
2. The hearing aid of Claim 1 wherein the flex circuit comprises a receiver mating portion and a microphone mating portion, the receiver mating portion abutting the receiver and the microphone mating portion abutting the microphone.
3. The hearing aid of Claim 1 wherein the flex circuit comprises compliant electrical connectors for connecting the microphone, electronics, receiver and battery, the compliant electric connectors providing strain relief for the flex circuit.
4. The hearing aid of Claim 1 wherein the flex circuit includes a microphone mating portion that abuts the microphone and forms an electric connection between the flex circuit and the microphone.
5. The hearing aid of Claim 1 wherein the flex circuit includes a receiver mating portion that abuts the receiver and forms an electric connection between the flex circuit and the receiver.
6. The hearing aid of Claim 1 wherein the flex circuit includes a plurality of conductive paths.

7. The hearing aid of Claim 6 wherein the conductive paths include of at least one receiver lead.

8. The hearing aid of Claim 6 wherein the conductive paths include at least one anode lead.

5 9. The hearing aid of Claim 8 wherein the anode lead includes a discontinuity which prevents the hearing aid from drawing power from the battery, unless bridged.

10 10. The hearing aid of Claim 9 further comprising an actuator mounted to the hearing aid, the actuator having a conductive surface contacting the anode such that the conductive surface bridges the discontinuity in the anode to engage the hearing aid in an ON mode of operation.

11. The hearing aid of Claim 1 wherein the flex circuit comprises at least one aperture to allow air to travel to the battery.

12. The hearing aid of Claim 1 further comprising a mechanical securing mechanism between the first section and the second section.

13. The hearing aid of Claim 1 wherein the second section comprises a potting material surrounding the receiver such that the potting material and the receptacle of the tip encapsulate the receiver to attenuate acoustic feedback.

14. The hearing aid of Claim 1 wherein the tip includes a channel for removal of wax from a bore in the tip.

15. The hearing aid of Claim 1 wherein the tip comprises a mushroom shaped portion and a sound port attached to the mushroom shaped portion.
16. The hearing aid of Claim 15 wherein the tip comprises a first durometer material and a second durometer material, the first durometer material being more  
5 compliant than the second durometer material.
17. The hearing aid of Claim 16 wherein the first durometer material forms the mushroom shaped portion of the tip.
18. The hearing aid of Claim 16 wherein the second durometer material forms the sound port of the tip.
- 10 19. A method of assembling a hearing aid comprising:  
casting a tip for a hearing aid, the tip having a receptacle for a receiver;  
providing a receiver;  
inserting the receiver into the receptacle within the tip;  
providing a second section housing;  
15 attaching the second section housing to the tip;  
applying potting material the receiver within the second section housing;  
providing a battery and flex circuit assembly;  
inserting a battery and flex circuit assembly within the second section  
housing;  
20 providing a microphone and housing assembly;  
mechanically securing a microphone and housing assembly to the second  
section housing;  
providing an actuator having a conductive surface; and  
inserting the actuator within the hearing aid, the actuator being  
25 electrically connected to the hearing aid without solder, the actuator allowing for  
powering of the hearing aid.

20. The method of Claim 19 further comprising electrically connecting the receiver to the flex circuit using a non-soldered connection.
21. The method of Claim 19 further comprising electrically connecting the microphone to the flex circuit using a non-soldered connection.
- 5 22. The method of Claim 19 further comprising sealing the receiver in the hearing aid with the potting material.
23. The method of Claim 19 further comprising bonding the second section housing to the tip with the potting material.
24. The method of Claim 19 further comprising electrically connecting the actuator with the flex circuit using a non-soldered connection.
- 10 25. The method of Claim 19 further comprising engaging a latching aperture located on the actuator with a latching projection located on the hearing aid, the latching projection preventing removal of the actuator from the hearing aid.
26. A hearing aid comprising:
- 15       a first section, the first section having a first housing containing a microphone and electronics;
- a second section attached to the first section, the second section having a second housing containing a battery a flex circuit mounted around the battery; and
- 20       a third section attached to the second section, the third section having a compliant tip and a receiver contained within a receptacle in the tip, the flex circuit electrically connecting the microphone, electronics, receiver and battery.

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27. The hearing aid of Claim 26 wherein the flex circuit comprises a receiver mating portion and a microphone mating portion, the receiver mating portion abutting the receiver and the microphone mating portion abutting the microphone.
- 5 28. The hearing aid of Claim 26 wherein the flex circuit comprises compliant electrical connectors for connecting the microphone, electronics, receiver and battery, the compliant electric connectors providing strain relief for the flex circuit.
- 10 29 The hearing aid of Claim 26 wherein the flex circuit includes a microphone mating portion that abuts the microphone and forms an electric connection between the flex circuit and the microphone.
30. The hearing aid of Claim 26 wherein the flex circuit includes a receiver mating portion that abuts the receiver and forms an electric connection between the flex circuit and the receiver.
- 15 31. The hearing aid of Claim 26 wherein the flex circuit includes a plurality of conductive paths.
32. The hearing aid of Claim 31 wherein the conductive paths include of at least one receiver lead.
33. The hearing aid of Claim 31 wherein the conductive paths include at least one anode lead.
- 20 34. The hearing aid of Claim 33 wherein the anode lead includes a discontinuity which prevents the hearing aid from drawing power from the battery, unless bridged.

35. The hearing aid of Claim 34 further comprising an actuator mounted to the hearing aid, the actuator having a conductive surface contacting the anode such that the conductive surface bridges the discontinuity in the anode to engage the hearing aid in an ON mode of operation.

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36. The hearing aid of Claim 26 wherein the flex circuit comprises at least one aperture to allow air to travel to the battery.

37. The hearing aid of Claim 26 further comprising a mechanical securing mechanism between the first section and the second section.

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38. The hearing aid of Claim 26 wherein the second section comprises a potting material surrounding the receiver such that the potting material and the receptacle of the tip encapsulate the receiver to attenuate acoustic feedback.

39. The hearing aid of Claim 26 wherein the tip includes a channel for removal of wax from a bore in the tip.

40. The hearing aid of Claim 26 wherein the tip comprises a mushroom shaped portion and a sound port attached to the mushroom shaped portion.

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41. The hearing aid of Claim 40 wherein the tip comprises a first durometer material and a second durometer material, the first durometer material being more compliant than the second durometer material.

42. The hearing aid of Claim 41 wherein the first durometer material forms the mushroom shaped portion of the tip.

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43. The hearing aid of Claim 41 wherein the second durometer material forms the sound port of the tip.

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